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Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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31 August 2006*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: BIOLOGICAL DATA SET COMPARISON METHOD

(57) Abstract: A method of identifying a relationship between a set of one or more candidate biomolecules and a set of one or more reference biomolecules, the method including inputting to a computer a query set describing the one or more candidate biomolecules; comparing the query set with a target database describing the one or more reference biomolecules wherein the one or more reference biomolecules grouped into one or more buckets and wherein the one or more reference biomolecules of each bucket share a common property; counting a number of matches between each query set and each buckets of the target database; and statistically analyzing the number of matches to each bucket wherein the presence of a statistically significant match identifies a relationship between the query set and a bucket of the target database.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/19932

A. CLASSIFICATION OF SUBJECT MATTER
IPC: G01N 33/48(2006.01)

USPC: 702/19
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 702/19

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LEIBOWITZ et al. "MUSTA - A General, Efficient, Automated Method for Multiple Structure Alignment and Detection of Common Motifs: Application to Proteins," Journal of Computational Biology (2001) Volume 8, Number 2, pages 93-121, especially abstract, pages 95-96, 100-104.	1-31, 33-40
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Y	YAP et al. "Parallel Homologous Sequence Searching in Large Database," Fifth Symposium on the Frontiers of Massively Parallel Computation, 1995. Proceedings. 'Frontiers '95'. February 1995, page 231-237 especially pages 231-233.	32, 41
Y	YAP et al. "Parallel Computation in Biological Sequence Analysis," IEEE Transactions on Parallel and Distributed Systems (March 1998) Volume 9, Number 3, pages 283-294 especially pages 284-292.	1-41
A	US 5,799,312 (RIGOUTSOS) 25 August 1998 (25.08.1998), columns 1-4	1-41

<input type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 17 May 2006 (17.05.2006)	Date of mailing of the international search report 06 July 2006
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Jerry Lin Signature:  Telephone No. (571) 272 1600

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/19932

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-4)

Remark on Protest

<input type="checkbox"/>	The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
<input type="checkbox"/>	The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
<input type="checkbox"/>	No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No. PCT/US04/19932

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group 1, claim(s) 1-41, drawn to a method of identifying the relationship between a biomolecule and a reference biomolecule.

Group 2, claim(s) 42-54, drawn to a data structure with three fields.

Group 3, claim(s) 55, drawn to a method of making a target database.

The inventions listed as Groups 1-3 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group 1 has the special technical feature of comparing biomolecules to reference biomolecules. Group 2 has the special technical feature of a data structure with three fields. Group 3 has the special technical feature of making a database. Each of the Groups do not share the same special technical feature with the other groups, thus Groups 1-3 do not relate to a single general inventive concept.

Continuation of B. FIELDS SEARCHED Item 3:

West, Medline, embase, biosis

Terms: query, protein, DNA, RNA, bucket